



D8.9

Demonstrator of implemented service

Work Package	WP8
Lead partner	CNRS
Status	Final
Deliverable type	Demonstrator
Dissemination level	Public
Due date	30.04.2023
Submission date	27/04/2023

Deliverable abstract

This report describes the demonstrator that has been developed by the Atmosphere sub-domain in order to demonstrate interoperability of the Atmosphere RIs data.



DELIVERY SLIP

	Name	Partner Organization	Date
Main Author	Damien Boulanger	CNRS	25/04/2023
Contributing Authors			
Reviewer(s)	Lara Ferrighi	SIOS	25/04/2023
Approver	Andreas Petzold	FZJ	27/04/2023

DELIVERY LOG

Issue	Date	Comment	Author
V 0.1	25/04/2023		Damien Boulanger

DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the Project Manager at manager@envri-fair.eu.

GLOSSARY

A relevant project glossary is included in Appendix A. The latest version of the master list of the glossary is available at <http://doi.org/10.5281/zenodo.4471374>.

PROJECT SUMMARY

ENVRI-FAIR is the connection of the ESFRI Cluster of Environmental Research Infrastructures (ENVRI) to the European Open Science Cloud (EOSC). Participating research infrastructures (RI) of the environmental domain cover the subdomains Atmosphere, Marine, Solid Earth and Biodiversity / Ecosystems and thus the Earth system in its full complexity.

The overarching goal is that at the end of the proposed project, all participating RIs have built a set of FAIR data services which enhances the efficiency and productivity of researchers, supports innovation, enables data- and knowledge-based decisions and connects the ENVRI Cluster to the EOSC.

This goal is reached by: (1) well defined community policies and standards on all steps of the data life cycle, aligned with the wider European policies, as well as with international developments; (2) each participating RI will have sustainable, transparent and auditable data services, for each step of data life cycle, compliant to the FAIR principles. (3) the focus of the proposed work is put on the implementation of prototypes for testing pre-production services at each RI; the catalogue of prepared services is defined for each RI independently, depending on the maturity of the involved RIs; (4) the complete set of thematic data services and tools provided by the ENVRI cluster is exposed under the EOSC catalogue of services.

TABLE OF CONTENTS

D8.9 - Demonstrator of implemented service.....	4
1 Introduction.....	4
2 Demonstrator.....	4
3 Link with other tasks.....	4

not yet accepted by EC

D8.9 - Demonstrator of implemented service

1 Introduction

The ENVRI-FAIR project's objective is to implement "FAIRness" for data produced in the European Research Infrastructures (RIs) organised in the Environmental Research Infrastructures (ENVRI) community, in order to make them ready for connecting to the European Open Science Cloud (EOSC). In this context, "FAIR" is an acronym comprising the aspects of "Findable", "Accessible", "Interoperable", and "Reusable" as specified by the FORCE11 community.

ENVRI-FAIR WP8 organises and conducts this implementation work for the community of ENVRI RIs in the atmospheric subdomain, comprising the RIs ACTRIS, EISCAT-3D, IAGOS, ICOS, and SIOS.

This deliverable called "FAIR ENVRI Atmospheric Data Demonstrator" has been implemented to demonstrate data interoperability within the Atmosphere subdomain. Motivations for the implementation have been described in Deliverable [D8.2: Recommended scientific end-to-end demonstration services](#).

The demonstrator has been developed in the frame of the Task 8.5: "Demonstrate Atmospheric subdomain FAIRness". The specifications of the application have been defined with all the Research Infrastructures participating in WP8. Main developments have been conducted by CNRS. A common library for metadata and data access has been implemented by all the participating RIs (ACTRIS, IAGOS, ICOS and SIOS) in order to provide a homogenic access to the RIs metadata and data.

2 Demonstrator

The FAIR ENVRI Atmospheric Data Demonstrator aims to shorten time response in providing scientific analysis of an extreme event and harmonized dataset and tools.

To facilitate the demonstration only datasets with Open Access have been considered. All RIs provide datasets licensed under the Creative Commons Attribution 4.0 International licence. Also, all RIs mapped their variables to the Essential Climate Variables (ECV) in order to provide common variables and intercompare them.

The demonstrator is a web application that offers the following features:

- search and determine Atmospheric RIs data availability for a period, geographical area of interest/stations and variables (ECV)
- fetch the selected data including previews of the datasets;
- provide combined plotting of the datasets timeseries;
- provide links for downloading the datasets depending on availability: landing page, OPeNDAP, etc.

The demonstrator has been developed in the language Python. The code can be found on this public Git repository: <https://github.com/iagos-dc/envri-fair-atmospheric-demonstrator>. Documentation describes how users can deploy the demonstrator on their system.

The application is also deployed at this address: <https://services.iagos-data.fr/envri-fair/>

3 Link with other tasks

In the frame of ENVRI-FAIR, the community has developed the ENVRI-Hub as a central platform for accessing interdisciplinary FAIRified environmental research assets, serving as an essential ENVRI community's interface to the European Open Science Cloud (EOSC). Through the ENVRI-Hub, the ENVRI community shares their FAIRness experience, technologies, and training as well as research products and services. The architecture and functionalities of the ENVRI-Hub are driven by scientific applications, use cases and user needs. Its four main pillars are the ENVRI Knowledge Base as the human interface to the ENVRI ecosystem, the ENVRI Catalogue of Services as the machine-actionable interface to the ENVRI ecosystem, the ENVRI Training catalogue and finally, subdomain and cross-domain

scientific use cases as demonstrators for the capabilities of service provision among ENVRIs and across Science Clusters.

The FAIR ENVRI Atmospheric Data Demonstrator is part of the ENVRI-Hub as a subdomain scientific use case.

The developments have been used as a base to implement a service of timeseries analysis implemented by IAGOS in the frame of the European project ATMO-ACCESS.

not yet accepted by EC